

## **Characteristics for secondary Montessori education in the Netherlands**

### **1. Head, heart and hands**

#### *Importance of this characteristic*

In "The Montessori education of the 21st century," working with head, heart and hands is translated into a wide range available at the school for the emotional, moral, social and cognitive development. Development has various forms that make up an inseparable whole. Attention to head, heart and hands gives the student the space to broadly form in light of the three objectives as formulated in the NMV (Dutch Montessori Association) paper.

Montessori imparted a large task on the school. In her experience, the school offers assistance to children for their entire lives. Development is not only a prerequisite for a successful study; it's also an intrinsic value in the forming process.

Connecting head, heart and hands in education leads to deeper understanding. The influence of exercise on cognition is one of the things that has been clearly observed by Montessori and which she has included in her method.

Recent brain research emphasises the role and importance of music, visual arts, creativity and exercise on brain development and cognitive functions in particular. Working with head, heart and hands means that teachers must have knowledge of cognitive, social, emotional and moral development and, on the one hand, have the skill to convert this knowledge to the design and implementation of challenging learning materials and, on the other hand, the skills to guide the students in these areas.

#### *Description of concept*

Montessori education aims to generate optimal development opportunities and outcomes in different dimensions; namely the cognitive, social, emotional and moral dimensions. We advocate adding the creative dimension to this. Under creativity, we not only mean artistic ability but also the ability to develop idiosyncratic thinking patterns.

Totality of education is also mentioned in the areas of cohesion and the connection of dimensions: the school subjects must be made as interrelated as possible (thematic, interdisciplinary education), rather than a classification of separate, non-related subjects. In addition, the school must not only pay a lot of attention to intellectual subjects but also to, for example, creativity, shaping motor skills (physical education) and social development.

The concept of immersion education is also used in this context: imbedded in the educational content, the necessary skills for thinking and doing are practiced.

### **2. Learning to choose**

#### *Importance of this characteristic*

In Montessori theory, learning to choose at school and freedom of choice are prerequisites for identity development and the development of independence. Research with children and adults has shown that freedom provides a feeling of autonomy. In addition to relationships and competency, this autonomy forms a general human need. This gives a positive feeling, increased self-esteem, has a positive effect on memory, and leads to better performance and higher motivation.

The freedom (of choice) should not be unlimited: unlimited choice leads to loss of overview. This is why Montessori material is limited in the primary school classes, so students learn to choose and learn that choosing requires consultation.

The freedom of choice at school can be considered as preparation for choices that must be made later in life. So, for example, the vast amount of information to be found on the internet necessitates well-informed choices.

#### *Description of concept*

Learning to choose means that students learn at school to constructively and responsibly choose within a framework (the prepared environment). The freedom extends to choosing material, editing the content of the material (linked to learning styles), choosing a partner and time (organise time and schedule work themselves within a framework). For teachers, this means that they must be able to design a programme that includes sufficient choices so that students can work independently and (depending on age and level) autonomously. A prerequisite for this is that teachers show confidence in their students' abilities and are willing to accept that students make mistakes and learn from them.

### **3. Reflection**

#### *Importance of this characteristic*

Reflection is an essential skill in order to allow students to determine how far they have come in their development and what their next steps could be. Students themselves can learn to reflect and also have reflection meetings with teachers. In addition to observational skills, reflection with students is an important tool for teachers. The value of reflection is supported by research. Reflection is counted as a meta-cognitive activity and is often called self-regulation. Research shows that mastery of self-regulatory skills leads to better results in work and study. Knowledge is increasingly subject to continuous change and this requires reflection on own competencies and insights.

#### *Description of concept*

Reflecting on learning is a skill where students are able to look at their own work, both at the content and the learning process. Reflecting on learning can take place individually, with a teacher or in a setting with fellow students.

When others join in on the reflection, others skills such as giving and receiving feedback come into play. Learning materials can also challenge students to reflect by, for example, incorporating error checking. For example, it's possible to incorporate error checking in a computer program. Test analysis forms are useful tools to allow students to reflect on their learning method.

Through observation, teachers can determine how far the students are in their development.

They should have skills to discuss this in a dialogue with students and get them to think for themselves. These teaching dialogues are an important part of education and work guidance at a Montessori school.

### **4. Social learning**

#### *Importance of this characteristic*

"The Montessori education in the 21st century" calls learning from and with each other one of the principles for the organisation of schools. It takes shape, amongst others, in heterogeneous grouping – achieved differently in primary schools than in secondary Montessori schools (vmo schools). When in primary schools, the students spend most of the day in classes that consist of two to three year groups; secondary Montessori education is largely classified according to the class year system. Heterogeneous grouping is then very limited to almost exclusively choice-work hours. Some schools use a shared school system where students from different years together form a department and meet each other more often. In Montessori theory, the ages from 12 to 18 years are a sensitive period for socialisation. It is for good reason that the few texts Montessori wrote about children in this period regard offering a practical environment in which adolescents can develop themselves socially and can experience in what way(s) they can use their talents to serve society.

Puberty is a time when adolescents are in search of themselves and of their own place within the different spheres in which they live. The school plays a role in this as orientation point and this role must therefore have a recognisable place in the educational process.

An element of socialisation is social development. This can be promoted by learning together as a way to experience what it means to contribute to the work of the group, in order to learn how the interdependence within a group works and to discover the own identity within the group process. Essential to this is the element of task acceptance, the realisation that working in a community entails personal responsibility for the individual members of that community.

Literature on student collaboration in this age group supports this insight. The literature states the psychological learning benefits of learning together, such as making explicit what is learned and actively learning with each other. The changing society demands employees that are communicative and flexible and able to collaborate.

#### *Description of concept*

Learning as a social process is an umbrella term understood to include both incidental and intentional learning together. In incidental learning, students work together with fellow students without predetermined intent and/or without a preconceived plan. This type of learning occurs often in vmo schools due to the setting in which the work is done. Students learn from each other in a natural and relaxed way.

Intentional collaboration is a type of collaboration that includes working according to a preconceived plan, with a competency profile for social learning (e.g., dividing tasks, collaboration, conflict management/resolution, monitoring process, results oriented, etc.) and clear evaluation criteria.

To teach students how to collaborate, the teachers should be able to design or use material suitable for collaboration and to guide students in the collaboration so that they can independently work with and learn from each other and are individually and jointly responsible for the work they do.

## **5. Cohesion in learning material**

#### *Importance of this characteristic*

The NMV paper states that students at school are given means with which they can investigate a reality area. Such a work process requires cohesion between subjects and a shift from a mainly supply driven to a more demand or problem based education. "The Montessori education in the 21st century" states that knowledge "is offered as a tool with which problems can be analysed and designs can be made".

This is in line with modern psychological learning concepts: by starting from larger wholes, it's easier to connect to the psychological perception of the reality of the students; learning can therefore be made more authentic and motivating.

Learning from a larger whole also has a social component: people are trained to develop a broad perspective in addition to having specialist knowledge.

Being aware of cohesion between events can also help students become more aware of their own place in a larger whole.

Of practical importance in creating cohesion in learning materials is that overlap between subjects is removed which helps with more efficient time management.

#### *Description of concept*

Cohesion in learning materials aims to make students able to investigate, as much as possible, reality as a whole. Cohesion occurs in the following ways:

- offer the opportunity to investigate and process the learning material as a large whole and from details and everything in between;
- horizontal range: subjects and learning areas are linked by content;
- longitudinal range: continuous learning pathways; logical development of content in time and sequence;

- cohesion in methodology: a cohesive whole of didactic forms is offered with regard to both the horizontal and longitudinal aspects;
- students get the opportunity to practice in different contexts; the didactic context is a vertical spiral: cyclical, but always on a higher plane.

Cohesion in learning materials means that teachers are willing and able to work together. In this creativity is also required in the design of the learning material since most methods are limited to one subject. Underlying this is the knowledge of knowledge development, especially the relationship between learning in larger wholes and more detailed knowledge.

## **6. Inside and outside school**

### *Importance of this characteristic*

Based on the three objectives from the NMV paper (personal development, learning skills and learning to fulfil roles), it is necessary to gain experience that helps learning to function in society: building a repertoire of actions, judging standards and values, practicing association and discipline. Analogous to the “exercises for daily life” in the primary school, you could also talk about “exercises for social life”. Insight into social relationships can only really be achieved by practical experience. During the period from 12-18, the education should be consistent with the development of the social consciousness, the sense of belonging and the sense of justice in children. This requires learning in a social context, inside and outside of school.

In Montessori, the capacity for social adaptation is the engine for mental development. Social experiences through practicing for living in society lead to personal independence, self-esteem and functioning in society. In order to learn and build up lifelong values and standards, it’s important for the students to find themselves in all types of groups. The school prepares an environment with increasingly broader social experiences, from the nearby vicinity to further afield. Students from the ages of 12-18 cannot sufficiently develop their personalities in a limited school environment. Development is fuelled by collaboration and “real work”.

A quote from Montessori: “Let us take the child out to show him real things instead of making objects which represent ideas and closing them in cupboards.”

Another specific learning objective is to discover cohesion; to perceive and use the world as a meaningful environment (see paragraph about cohesion in learning material). Thus the concept of a prepared environment also extends to the outside world.

Montessori education looks for meaningful contexts by connecting school and environment. Versatility/transfer of knowledge and skills are enhanced by linking academic knowledge to “real world” issues. The near environment is an important teaching tool. The cognitive yield from connecting inside and outside is the instilling of the awareness of interrelationships, understanding of the whole in which the details instilled at school have their organic and logical place. When connecting the outside and inside the school, the school demonstrates a broad understanding of the functions of the school: “learning to live” (the broad introduction into the culture).

Support for the meaningfulness of connecting the inside and outside of school can be found in the concept of “meaningful learning environment”. Research shows that students of all ages learn better if there is a more conscious link established between existing knowledge and their own lives and new knowledge and skills.

Psychological learning and neurological research increasingly shows that students learn more effectively and that broad development is promoted as they gain personal experience.

### *Description of concept*

Schools can provide three contexts in which connections are made between the school and the outside world:

- a) Practicing in school (the school as a mini-society): helping in the canteen, organising workweeks, student council, applications and evaluations, peer mediation, tutoring. The school as a microcosm, practicing for life if in society.
- b) Going from school to the outside world: community or LOB (Career Guidance and Counselling) internships, comprehensive school projects, research. From inside to outside, application-oriented, cosmic, giving meaning, integration, academic knowledge and skills obtain social value, connecting.
- c) Bringing the outside world inside: simulations, making connections between work/tasks/functions outside and inside. From outside to inside, the "lifting" of and giving a place to skills gained outside. This gives the world outside school meaning in school. When teaching inside and outside school, teachers should have an idea of what in-school and extracurricular elements can broaden and deepen the students' learning. It requires curiosity and creativity, where teaching does not stop at the method used. "Lifting" and making meaningful the work that students do outside school requires reflection skills.

Summary from "Characteristics of schools for secondary Montessori education", editor Michael Rubinstein